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(54) SYSTEMS AND METHODS FOR DATA SYNCHRONIZATION AND FAILOVER

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(57) ABSTRACT

A Data Synchronization and Failover Management (DSFM) system monitors simultaneous execution of non-identical instances of a software application and may label as a particular result of the software application the earliest output corresponding to that result produced by one of the instances. The DSFM may label one of the instances as a primary instance and the other instances as secondary instances and, if the primary instance fails, may re-label one of the secondary instances that computed all of the operations associated with the last result produced prior to the failure of the primary instance, as a new primary instance.

My application just crashed, and the back-up took over immediately, but it is slower than the primary. 103



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The DSFM provides ways to reduce any lag in the event of an application failure. For example, it allows for secondary/backup applications to be in an almost identical state as the primary, and as such if the primary fails, the secondary takes over in a seamless fashion. As another embodiment it may run two or more applications to build redundancy in case of application failure and allow only one or more of the fastest ones to write outputs. 104



DSFM Server 1 02